

Iwao HINO* and Ken KARUMOTO*: *Anisomycopsis*, a new
genus of the Pyrenomycetes

日 野 巖*・勝 本 謙*: 新属アニソミコブシスについて

The former investigation of the Pyrenomycetes seems to be insufficient for inducing the conclusion of the question in the flora of this group of fungi. Though a considerable number of the Pyrenomycetous fungi has been found and described in Japan, it is necessary to make a reexamination of a great majority of these fungi and also to search for the unknown fungi which are left undiscovered to this day. These fungi seem to be not only the common species which are merely left undiscovered, but also the peculiar ones worthy of mycological investigation.

The writers were fortunate to collect an uncommon fungus and to study it with keen interest. In spite of the careful research of the writers, they were unable to find an appropriate genus of the Pyrenomycetes to be applied to the known genus, and inclined to establish a new genus for the fungus in question. In this paper the discussion on the systematic position of the present fungus and the description of the newly established genus were dealt.

Morphology of the fungus. The perithecia are subepidermal, sparsely gregarious, solitary, subglobose or somewhat flattened, $250\sim300\mu$ in diameter and $180\sim250\mu$ in height. The peridium of the perithecia is membranous, pseudoparenchymatous, thin, brownish or yellowish brown, and composed of the cells which are flattened globose, isodiametric, with thin walls and $6\sim10\times 2\sim3\mu$. The upper portion of the peridium is blackish brown, rather thickened, affecting the epidermis, making a small clypeus over the perithecium, slightly protruded and opening with a round pore toward the outer surface of the host tissue. The asci are diverging from the greater portion of the inner surface of the peridium, cylindrical or clavate cylindrical, rounded and thickened at the apex, shortly stipitate or almost sessile, containing eight spores, unitunicate, and $72\sim88.5\times 11\sim12.5\mu$. The substance, which is easily stained in bluish by iodine, is found at the ascus top through which a narrow canal passes. The paraphyses are filiform, simple, hyaline and $70\sim100\times 1\sim1.5\mu$. The ascospores are biseriata in the asci, fusoid or oblongate fusoid, 1-septate at a short distance

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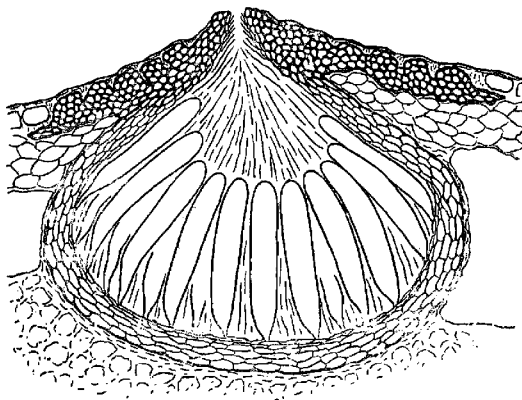


Fig. 1. *Anisomyces rosae*.
Perithecium $\times 200$.

from the basal end, not or a little constricted at the septum, rounded at the apex, obtuse at the basal end, hyaline at first, later the proximal larger cells change fuscous brown into dark brown in colour, while the distal ones are still hyaline, with large guttations, surrounded by hyaline mucous sheath and $18.5 \sim 26.5 \times 6.5 \sim 8 \mu$.

Taxonomical discussion on the fungus. The present fungus shows a remarkable characteristic in the form of ascospores, which are divided into unequal two cells to the extreme degree and surrounded by distinct mucous sheath. The distal cells of ascospores are very large, and have pigmentation in

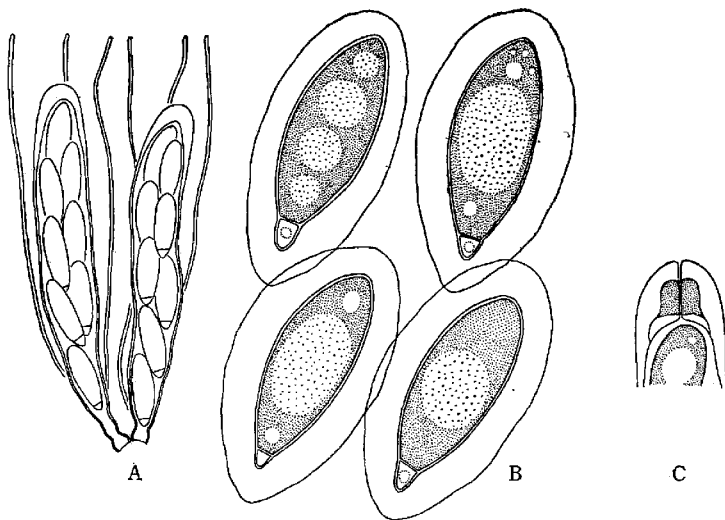


Fig. 2. *Anisomyces rosae*. A. Asci. $\times 600$. B. Ascospores. $\times 1,400$. C. Ascus top.

dark brown. The proximal ones are very small and $2\sim 3\mu$ in length, hyaline at all and seem to be merely the appendages of the distal ones.

Similar ascospore-form that the small hyaline appendage attaches to the proximal end of dark-coloured continuous ascospore is often observed in some genera of the family Xylariaceae, such as *Anthostomella* or *Entosordaria*. Especially in the genus *Anthostomella* the perithecium has a clypeus at the upper portion, and in some species of this genus the appendaged ascospores are surrounded by mucous sheath. Though the writers' fungus seems to be in a little affinity to some Xylariaceous fungi, it has no germ slit which is found at the side of the ascospores as generally observed in the character of Xylariaceous fungi. The distinct septum is recognizable between the larger and smaller cells of ascospore, and the oil drops are contained in both cells in the writers' fungus. It seems to be natural that the writers' fungus is to belong to a certain didymosporous genus of the Pyrenomycetes.

There are many genera of didymosporous fungi in the Pyrenomycetes, which have been described as to possess the ascospores unequally divided. As the distal cell of the ascospore in the writers' fungus is fairly dark-coloured, the hyalodidymosporous genera of fungi is to be aside from the question. The principal characteristics of the related genera and the writers' fungus are tabulated below for the interests of comparison.

generic name	perithecium	ascus	ascospore	mucous sheath
<i>Pteridiospora</i>	immersed, clypeus present, globose to depressed globose	bitunicate	oblongate, unequally 2-celled, brownish	+
<i>Didymopleella</i>	immersed, stroma or clypeus lacking, globose	bitunicate, J—	oblongate, 2-celled, distal cell large, brown, proximal cell small, paler than distal one	—
<i>Apiosphaeria</i>	immersed, stroma and clypeus-like structure present, globose or depressed globose	unitunicate, J—	elongate ovoid, 2-celled, distal cell large, proximal cell small, both hyaline or pale yellowish	—

<i>Stigmochora</i>	immersed, pseudo-stroma and clypeus present, globose to flask-shape	unitunicate, J—	1-septate at one-third from end of spore, hyaline to brownish	±
<i>Coccochorella</i>	immersed, stroma and clypeus present, globose	unitunicate, J—	ellipsoid, 2-celled, distal cell large, brownish, proximal cell small, hyaline and appendage-like	—
<i>Anisomyces</i>	immersed, stroma present, often clypeus-like, globose or depressed globose	unitunicate, reflective apical ring present	oblongate, 2-celled, distal cell large, brown, proximal cell small, paler than distal one	—
<i>Apio-rhynchostoma</i>	immersed, rather long ostiolate portion rarely shows clypeus-like structure, globose to flask-shape	unitunicate, J+ apical structure present	cylindrical, 2-celled, distal cell large, brownish, later divided into two cells, proximal cell small, hyaline and appendage-like	—
the writers' fungus <i>Anisomycopsis</i>	immersed, clypeus present, globose to depressed globose	unitunicate, J+ apical structure present	oblongate, 2-celled, distal cell large, brown, proximal cell small, hyaline	+

Remarks: J+ Iodine reaction positive, J— Iodine reaction negative,
+ present, ± present or absent, — absent.

The writers' fungus is easily distinguishable from the genera *Pteridiospora*, *Apiosphaeria* or *Stigmochora* in respect of the characteristics of the ascus or ascospores. The ascospores of the writers' fungus are somewhat resemble those of the genus *Coccochorella*, but the perithecia of the latter have the stromata, and the asci show no reaction in the iodine test, exhibiting much difference from the writers' fungus.

The genera *Didymoplella* or *Anisomyces* seem to be highly similar to the fungus in question in respect to the characteristics of the perithecia and ascospores. These two genera of fungi, however, are distinguishable from the writers' fungus in regard to the characters of the ascus. The genus *Didymo-*

pleella has the bitunicate ascus of which apical portion is thick-walled, but shows no distinct structure in the iodine test, and the genus is to be included in the family Pleosporaceae. As for the genus *Anisomyces*, the ascus top of the fungus of this genus is quite distinct and shows refractive rings on the optical inspection without staining with iodine, and the genus *Anisomyces* is to be included in the family Diaporthaceae. The ascus top of the writers' fungus is thick-walled and has no specific structure on the optical inspection, but shows distinct apical ring which is stained bluish in the iodine test. The narrow canal passes through the ring between the inner and the outer membrane of the ascus. It is clear that the fungus in question belongs to the family Amphisphaeriaceae in respects of the characteristic of the perithecia and the unitunicate asci.

In the family Amphisphaeriaceae some genera, such as *Apiospora* Sacc., *Apiothyrium* Petr., *Chaetapiospora* Petr., *Pseudomassaria* Jacz. and *Apiorhynchostoma* Petr., have been known to have unequal two-celled ascospores. They, however, are quite different from the writers' fungus in respect of spore pigmentation excepting the cases in the genera *Chaetapiospora* and *Apiorhynchostoma*. The ascospores of the genus *Apiorhynchostoma* are two-celled at first, then divided into three cells by forming a septum at the middle portion of the larger distal cells. The dark two-celled ones have been considered by some of the students to attach a hyaline small appendage at their one end, thus apparently showing three-celled form, and consequently they are quite different from the writers' fungus. The genus *Chaetapiospora* is characterized by the presence of distinct setae which grow around the apical portion of the perithecia. The writers wish, therefore, to recognize the fungus in question to belong to the hitherto undescribed genus, and to establish a new genus for the fungus.

Anisomycopsis Hino at Katumoto, gen. nov. Peritheciis immersis, gregariis, solitariis, subglobosis vel plane globosis; contextu membranaceo, pseudo-parenchymatico, brunneo, apice atro-brunneo, clypeolato, ostiolato; ascis cylindro-clavatis, apice crassiparietalibus, unitunicatis, breviter stipitatis vel subsessilibus, octosporis, J+; paraphysibus filiformibus, simplicibus, hyalinis; ascosporidiis fusoides vel oblongo-fusoides, 1-septatis, cum loculis superne magnis et brunneis, inferiore parvis et hyalinis, guttatis, laevibus, cum substantia mucosa circumdatis.—Typus: *Anisomycopsis rosae*.

Anisomyces rosae Hino et Katumoto, sp. nov. Peritheciis immersis, gregariis vel sparsis, solitariis, subglobosis vel plane-globosis, apice clypeolatis, 250~350 μ diam., 180~250 μ altis; contextu membranaceo, pseudoparenchymatico, tenui, brunneo vel luteo-brunneo, ex cellulis plane globosis vel lenticularibus, 6~10 \times 2~3 μ composito; ostioliis erumpentibus, rotundatis; ascis magnam partem peridii nascentibus, cylindraceis vel clavato-cylindraceis, unitunicatis, apice rotundatis et crassiparietalibus, breviter stipitatis, saepe subsessilibus, octosporis, J+, 72~88.5 \times 11~12.5 μ ; paraphysibus filiformibus, simplicibus, hyalinis, 70~100 \times 1~1.5 μ ; ascosporidiis distichis, fusoides vel oblongo-fusoides, 1-septatis, cum cellulis superiore magnis et brunneis, inferiore parvis, hyalinis et 2~3 μ in diam., non vel vix constrictis ad septum, apice rotundatis vel obtusis, laevibus, guttatis, cum substantia mucosa circumdatis, 18.5~26.5 \times 6.5~8 μ .

Hab. in caulibus putrescentibus *Rosae polyanthae* Sieb. et Zucc. Tyôhu, Simonoseki, Prov. Nagato, Japonia (Mart. 27, 1960. K. Katumoto—Typus in Herb. Fac. Agr. Univ. Yamag.)

摘 要

1960年春、ノイバラの枯枝に発生している菌類の一種を採集して検討を加えた。この菌の子嚢殻は寄主の表皮下に埋没して扁球形、頂部は表皮を破って口孔を僅かに突出し、かつ菌組織の充滿した寄主表皮細胞とともに、黒色の clypeus を形成する。子嚢頂部は厚膜、沃度沃度カリ液で処理すれば、青変して現われる輪状物を含み、ごく狭い溝がこの部分を貫通している。胞子は特徴のある形態を示し、基部に近く一隔膜を生じて2細胞に分たれ、上部細胞は成熟して褐色ないし黒褐色となるが、基部の小細胞は永く無色のままである。両者ともに大小の油胞を含み、胞子全体に無色の膠質膜を被っている。子嚢殻および子嚢頂部の性質から、この菌は *Amphisphaeriaceae* に属するものであると考えられる。同科中には、*Apiospora*, *Apiothyrium*, *Pseudomassaria*, *Apiorhynchostoma*, *Chaetapiospora* などの不等2細胞からなる子嚢胞子を有する属が存在するが、前三者は胞子が無色、*Apiorhynchostoma* 属は褐色大細胞ののちにはさらに一隔膜を生じて3細胞となるものであり、また *Chaetapiospora* 属は口孔周縁に剛毛を有する点で区別され、筆者等の菌に該当する特徴を具えた属を見出し得ない。この菌はまた *Didymoplella* 属あるいは *Anisomyces* 属にもよく似ているが、この二つの属は、子嚢の性質から前者は *Pleosporaceae* に、後者は *Diaporthaceae* に属するものであり、ともに筆者等の菌とは直接の関連は見られない。したがって、筆者等は *Amphisphaeriaceae* の中に新属を樹ててこの菌を所属させるべきであると考えて、これを *Anisomyces rosae* Hino et Katumoto, と命名、記載した。